Petroleum and geothermal energy safety information sheet

Geothermal exploration drilling, development and production (general)

This information sheet will assist people with understanding the management of safety regulations associated with the Petroleum and Geothermal Energy Resources Act 1967, and the implications for geothermal energy recovery in Western Australia.

Note: This document is for guidance only and the definitive statutory requirements are contained in the Petroleum and Geothermal Energy Resources Act 1967, Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010 and Petroleum and Geothermal Energy Resources (Occupational Health and Safety) Regulations 2010.

Q. Are approvals, permits or licences required?

A. All geothermal energy exploration, drilling, development and recovery activities require approval from the Department of Mines and Petroleum unless excluded from the Petroleum and Geothermal Energy Resources Act 1967 by application of the Act.

Q. What are these exclusions?

A. Under section 7(4) of the Petroleum and Geothermal Energy Resources Act 1967, an exclusion by application of the Act may apply if activities:
   • are carried out for the purposes of a small-scale ground source heat pump of the nature used in private domestic family homes
   • involve small-scale recovery of geothermal energy not for a commercial purpose.

Q. What is considered to be commercial?

A. To be operating for a “commercial” purpose, the following factors need to apply:
   • separate legal entity (a natural person is not a separate legal entity)
   • to be able to yield or make profit
   • suitable or fit for a wide, popular market
   • suitable for or catering to business rather than private use.
   Examples of “non-commercial purposes” include activities for:
   • non-profit research
   • charity
   • personal use
   • teaching purposes.

Q. Is confirmation required for an exclusion?

A. Confirmation of what would be considered as “not commercial” must be sought in writing at all times except:
   • for small-scale ground source heat pumps, such as those for private home heating or cooling, where vertical drilling is purely for domestic home systems
   • when no drill rig is required on site, such as for horizontal ground heat private domestic recovery systems for personal use.
Q. Are there any exclusions for drill rigs other than for private domestic personal use home systems?
A. Approval must be sought in all other circumstances, regardless of drill rig or operation size and type.

Q. Are there any specific requirements to fulfil before an approval would be granted?
A. The applicant must demonstrate how they will fulfil their obligations and duties to the activity’s integrity (i.e. soundness of the process and equipment) and the occupational safety and health of persons engaged in the operation and other protected persons, such as visitors.

The documented form must comply with the regulations covering management of safety, and occupational safety and health. These regulations call for an acceptable safety management system (SMS), including a documented emergency response plan (ERP).

Q. Can activities commence while the SMS, including the ERP, is being developed, or while waiting for acceptance once submitted to the Minister?
A. It is an offence to conduct activities without an accepted SMS in force, unless excluded from the Petroleum and Geothermal Energy Resources Act 1967.

After applying for approval to drill, the operator should submit the SMS to avoid breaching regulation 5 of the Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010, where a person engages in an operation without an approved SMS.

Note: “SMS in force” is defined as an SMS or revised SMS that has been accepted by the Minister for Mines and Petroleum. “Person” includes a public body, company, or association or body of persons, corporate or unincorporated.

Q. What content is required for an SMS to be accepted by the Minister?
A. Regulations 10 to 25 of the Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010 cover the content requirements. One component of an SMS is an ERP (normally furnished as a separate document).

The documents submitted by the operator should be relative to the size, scope, complexity and risk of the project, and in a form acceptable to the Minister. They need to demonstrate that the systems in place are appropriate to eliminate or reduce to as low as reasonably practicable (ALARP) the risk of an incident, and fulfil the duty of care obligations, responsibilities and duties under the Petroleum and Geothermal Energy Resources Act 1967 to persons engaged in the operation and other protected persons, such as visitors to the work site location.

A bridging document is also required if there is more than one party involved, such as an operator and drilling contractor. This document needs to demonstrate that any potential conflicts between the operator and contractor’s safety management and emergency response documents are resolved. The bridging document must demonstrate that decision-making, command and communication arrangements are clear to all involved parties for normal operational activities and emergencies, site-specific hazards will be managed, and potential incidents will have an appropriate and efficient response.

Note: Additional approvals may be required regarding design validation, construction and operation if exploration drilling is successful and geothermal energy is to be commercially extracted.

For further guidance on the SMS content, see the evaluation checklists and other guides available for petroleum and geothermal energy operations at www.dmp.wa.gov.au/ResourcesSafety in the safety guidance section.